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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,566	01/06/2006	Kazuhiro Harada	JG-SU-5212/500577.20065	7322

26418 7590 04/30/2007

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EXAMINER	
HITESHEW, FELISA CARLA	
ART UNIT	PAPER NUMBER
1722	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,566	HARADA ET AL.	
	Examiner	Art Unit	
	Felisa C. Hiteshew	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 01/06/2006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The Information Disclosure Statement under 37 C.F.R. 1.97 has been received and reviewed. However, the information disclosure is not deemed to be pertinent over the prior art of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada, et al (U.S. Patent No. 6,379,460 B1).

Harada, et al teaches a thermal shield device to be provided in a crystal-pulling apparatus for the production of growing silicon single crystals, comprising a silicon melt reserved in a quartz crucible having an outer peripheral surface encircled with a heater, a tubular part to be used for grown in an upward direction to prevent radiant heat from the heater toward the silicon monocrystal ingot being pulled and grown in an upward direction to prevent radiant heat from lower end positioned above a surface of the silicon melt with a predetermined spacing there between; and a protruding part formed on a lower portion of the tubular part and filled with a thermal-insulating member, which protrudes in an inward direction and has a bottom wall facing to the silicon melt. Here, the bottom wall may be shaped like a "ring" having and outer edge connected to a lower edge of the tubular part and may extend horizontally to the proximity of an outer peripheral surface of the silicon monocrystal ingot. The protruding part may further include: a vertical wall positioned at a distance from the outer peripheral surface of the silicon monocrystal ingot and connected to an inner edge of the bottom wall, extending in parallel to an axis of the silicon monocrystal ingot or extending at an angle of –30 to +30 degrees with respect to the axis of the silicon monocrystal ingot. Harada, el al also teaches an inclined inner wall extending in an upward direction with a gradual decrease in diameter which may be formed as an intersection between the vertical wall and the bottom wall and inclined at an angle of 80* or less but not zero with respect to an under surface of the bottom wall so as to satisfy that the relationship between the diameter "D" of the silicon monocrystal ingot and the vertical distance L1 form the lower edge of the vertical wall to the under surface of the bottom wall is represented as $0 \leqq L1 \leqq d/2$.

The spacing between the outer peripheral surface of the silicon monocrystal ingot and the vertical wall may be in the range of 10 mm to 30 mm (see column 2, lines 24-68; column 3, lines 17-25 and lines 49-51; column 6, lines 21-25 and column 8, lines 21-26). Note, that all of the structural components are made of a carbon material (See column 11, lines 37-42). Harada, et al also teaches a silicon single crystal ingot with a diameter of 210 mm from a silicon melt. At the time the top of the ingot was pulled 400 mm from a surface of the melt, the distribution of temperature in the silicon single crystal ingot was simulated and calculated using the heat-conduction analytical program (See column 12, lines 12-19).

The difference being that Harada, et al does not exactly teach "... a heat accumulating portion has a thermal conductivity of 5w/(m*C) or less..." or "... the minimum distance (W1) accumulating portion is 10 mm or more and 0.2 d or less. However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable apparatus limitations in order to ensure proper orientation.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might reasonably infer from the teachings. In re Opprect 12 USPQ 2d 1235, 1236 (CAFC 1989); In re Bode 193 USPQ 12; In re Lamberti 192 USPQ 278; In re Bozek 163 USPQ 545, 549 (CCPA 1969); In re Van Mater 144 USPQ 421; In re Jacoby 135 USPQ 317; In re LeGrice 133 USPQ 365; In re Preda 159 USPQ 342 (CCPA 1968).

Expected beneficial results are evidence of obviousness, just as unexpected

beneficial results are evidence of unobviousness. In re Novak 16 USPQ 2d 2041 (Fed. Cir., BPAI 1989); In re Hoffman 194 USPQ 126 (CCPA 1977); In re Skoll 187 USPQ 481 (CCPA 1975); In re Skoner 186 USPQ 80 (CCPA 1975); In re Garshon 152 USPQ 602 (CCPA 1967).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta, can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system. see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).

FELISA HITESHEW
PRIMARY EXAMINER
AU 1722